IEC ACADEMY WEBINAR Q&A

Sustainable Development Goals and the impact of Standardization, 15 July 2020

Questions	Answers
In a world without the IEC would the level of investment needed (it is an investment, not cost) to attain the SDGs be higher or lower? By a factor of what?	We know from long-term empirical studies, that standardization improves the efficiency of economies by several percentage points. It can be assumed that economies who apply widely agreed technology solutions in the context of SDGs, would benefit in a similar way. However, since no study has been undertaken with regard to SDGs, it is impossible to give a concrete figure. It is important to understand that standards are important to deliver on SDGs.
How can I best help your sustainability goals move forwards - what should I participate in to help, where do I start?	You are welcome to join the IEC! The primary way to get engaged is to approach your IEC National Committee or the national standardization organization in your country. The contact will be available here (for full and associate members) or here (for Affiliate countries)
How can we, as NC Member as well as IEC Expert, contribute in SDGs ongoing work packages?	IEC Members and experts can participate in ongoing SDG work by; • reading through the current body of work on SDGs in the IEC available at www.iec.ch/sdg • bringing up the discussion on SDGs in every committee meeting • submitting contributions to standards being developed • seeking input from IEC CO, IEC Academy or write to the IEC Ambassador for more information
SDG starts with word sustainability and SDG 7 target underline 'Reliability' for Access to Electricity indicator. However in many developing countries like India we see huge propensity of market force to push cheapest product at the cost of minimum life cycle sustainability. How is IEC responding to such ground realities?	IEC works on consensus standards, not on pricing of components. IEC Standards provide a framework for making technology safe, assuring expected performance, but pricing is an aspect of the free-market economy and outside of purview of the IEC. A proposed action would be to ensure that the products used comply with IEC Standards. We can relate an example from South Africa on solar water heaters, were regulators at first did not insist on products being certified to IEC Standards. The result was that while installed products were very cheap, the long-term cost was higher than for standardized products, both in terms of repairs, maintenance and need for earlier replacement. Ever since South Africa's energy regulators are insisting on compliance with IEC Standards. Additionally, World Bank investments in power generation in developing countries are generally linked to a set of IEC Standards that need to be followed. This is to protect long-term investment and ensure quality infrastructure.
To appreciate the importance of LVDC there is need to make the IEC members aware about situations where there is no electricity access and not by choice. What is the course of action adopted by IEC to achieve this?	IEC develops standards and it is not the role of IEC to push/endorse or evangelize on specific technologies. However, the Systems Committee on LVDC continues to have its programme for taking the IEC consensus thinking to global platforms via conferences, workshops and webinars.
OEMs have 'Warranty' (limited time) in their vision, Project developers have 'First Cost' (lowest cost) in their vision, Policy Makers have 'Outreach at Cost of Public Exchequer' (Getting next mandate) in their	The IEC welcomes citizens and consumers to provide input into the standardization process. Many consumer organizations participate in NCs and national standards organizations. We can only encourage consumers to carry their needs to national consumer organizations to get their

vision but Citizen Consumer the beneficiary for next few decades does not have any say.	voice heard at the national level. National input can be put forward in the standardization process by the IEC Members directly through active participation and through public commenting: https://www.iec.ch/comment/
How will the persons benefit from the standards with SDG considerations (like a resident in a village in Mumbai without electricity) be made aware of the provisions of the standard, have access to the standard and participate in the standardization work?	Most countries in the world participate in one form or another in the IEC. The key responsibility of governments is to ensure that national needs are included in international standardization efforts and that the resulting international standard is adopted. Thereafter products that enter the national market (or are produced nationally) need to be tested and certified to this standard. If the above approach is applied, the consumer has nothing else to do. He/she does not need to participate in any way in standardization and doesn't need to access any standard, because the products they purchase have been built to IEC Standards and provide built-in safety, efficiency and interoperability. Our task is to keep governments informed about standards that are relevant to them. This is a difficult task, but one we pursue eagerly since many years and into the future.
Different committees are still facing challenges in mapping their standards to individual SDGs… More elaboration would be crucial to achieve it. Do you have any immediate response to this?	The IEC has already identified many TCs and CA System schemes and their potential impact on individual SDG targets. Over the course of the next couple of years, individual TCs will receive training and mentoring to grasp the extent of the impact of their work on SDGs. Already now, I encourage every TC to start a dialog in its committees on SDGs. The key is not to be limited in discussion to the top level 'slogans' of the SDGs, but to review the Targets and Indicators. This would present a good hint toward direction on how a TC can connect its work to the SDGs. The Committees Technical Officer can help mapping the SDGs with the current standards catalogue and work programme.
There is a proverb that says: "Make the hay when the sun shines bright", that is followed in its literal sense by mushrooming suppliers who have often scant regard to standards. How does IEC handle these ground realities?	I fully empathize with this statement. IEC International Standards are voluntary. They can be adopted by countries within the context of a quality infrastructure (and they often are). In the end of the day it is the role of the national regulator to enforce the compliance to standards for devices to be imported in the country. The IEC CA Systems can be an important tool for regulators to verify compliance.
I feel that the approach to Electricity Access should focus on Leap Frogging instead of the incremental approach that is being adopted. Motorised equipments are necessary to enable productive use of electricity. For this the LVDC SyC should start focusing on related standards. This will also address Climate Control in a big way. An add on benefit will be in the electric mobility where efficient motors play an important role. What are your views on the subject?	Standards are an important tool that allows countries/economies to benefit from global consensus on current best-practice in a multitude of areas, including energy access, especially using renewable sources of energy. Leapfrogging is already happening in many countries, take for example the development of mobile phone infrastructure, where fixed networks never existed. The same still needs to happen in electricity access. Sometime, the issue is that local populations perceive off-grid or small electrification to be less good than big grid networks. The example of mobile phones can be very helpful in explaining why new approaches can be faster, more cost efficient and better than the old approach. The World Bank, IEA, and many other institutions are trying to educate governments directly and consumers indirectly in new approaches to energy generation/access. This takes time. Electrification has made incredible inroads in many developing countries, but there is still a long way to go. The role of the IEC is to ensure that products in the context of energy generation (both small and big) are safe to use,

	efficient and interoperable in that they can be connected to grids or expanded.
Could you please elaborate the coherence between IEC & NEMA in terms of latest efficiency of Electric AC motors in context with SDGs?	NEMA is the National Electrical Manufacturers Association (NEMA), primarily an American association. IEC is the International Electrotechnical Commission. NEMA is a very active member of the US IEC Member. Over the past years a good degree of harmonization has happened between US national NEMA and international IEC Standards. The same goes for testing and certification. Efficiency is a moving target and new criteria are constantly being developed. We are happy to count NEMA among our expert liaison organizations. Their contributions are highly useful and important. NEMA submits several standards for further adaptation/approval at the international level. There is a good collaboration between IEC and NEMA. Several NEMA people are officers of IEC TC/SCs.
SDGs are not cost sensitive as the irony of scale gets clogged up in inflation consideration. Solar panels increase in cost by inflation considerations as does the Standard Grid Tariff, which do not reflect affordability by users. SDGs must be policed not against the inflation scale but on affordability that would promote extensive utilisation. How can standardization align with affordability and reliability which are cornerstones benchmarks of sustainability?	Standardizations helps ensure safety, efficiency and resilience providing commonly accepted key performance indicators. Such common KPIs facilitates comparisons for a better evaluation of the value of products from different suppliers: to allow people to compare apples with apples. They also help manage expectations of buyers, investors, insurers, regulators, etc. and encourage market competition. Taking the example of solar lamps: the IEC has put in place standards that ensure their safety and efficiency, as well as a conformity assessment programme that can be executed in any country in the world. In the end of the day, if you want to ensure technology adoption, you need to obtain the trust of the consumer that the technology will perform as expected. Governments must realize that when NGOs or other players introduce low quality technologies, long-term adoption will suffer and e-waste increases. And thee end-result of energy efficiency, lower climate impact will not be achieved.
As you mentioned that the standardization professional cannot investigate the affordability of technology and their first and foremost task is to see whether the technology is safe and secure. My question is that in such a situation how does IEC contribute in achieving SDG 7? It may be recalled that countries in South Asia and Africa are unable to overcome poverty because as of now they cannot afford technology and take drastic changes for improving the technology.	Through standardization, IEC can support the affordability of high technology products: mass production of compatible products can be achieved. See for example the incredible increase of mobile phone use in Africa. Public private cooperation and increased feedback for the standardization process by developing countries can stimulate innovation for solutions that are more affordable, while still being safe. The new trend towards small DC appliances is a good example for this.
How can we get high technology of electricity?	Electricity drives most modern technologies. Modern manufacturing processes increasingly depend on electricity because it makes temperature and process control so much easier. Without electricity the use of modern information and communication infrastructure is impossible. These are all examples of how we get high technology to function with electricity. In terms of accessibility, standardization supports the mass production of high-tech products and helps stimulate competition which in the end of the day benefits the consumer.

What changes should IEC TCs make to better and more proactively include SDG work?	My suggestions: a) Immediately put it on the agenda of the TC/SC/SyC/WG agenda and have a brain storming session b) Try and understand the intent and dynamics behind the SDGs c) Learn about SDG Targets and indicators d) Begin to connect the work with some targets and indicators e) Include in the standards provisions about energy efficiency, circular economy, repairability, waste management, etc.
What is the goal for IEC until 2030 within the SDG work?	We would like all countries in the world to use IEC Standards to ensure the safety, reliability, efficiency and sustainability of technologies that use electricity or contain electronics. IEC work contributes to all 17 SDGs and we want people in governments, international organizations, academia, consumer organizations to understand that IEC needs to sit at the table. That IEC work simplifies the implementation of SDGs. For this the IEC needs to ensure that IEC standards are ahead of the curve in evolution and enable every country in the world to achieve its SDG targets.
IE5 (International Efficiency) motors use permanent magnets. How does it impact SDGs?	Permanent magnets are used to reduce the loss of iron and copper and they are significantly more efficient than induction motors. Therefore, they will offer a direct impact on energy efficiency and climate targets. Here like elsewhere, progress towards energy efficiency is a moving target and new technologies continuously build on existing ones.
Are the indicators tied to sustainability models?	Focus should be on User Needs and this is done in Accessibility - from goals you can derive user needs and write standards around those. Example: ISO/IEC 29138:2018 (free standard)
Does IEC have standards for recycling Solar panels? This is very important to avoid ending up with a replica of ‘Polyethene Bags’ that the world is facing now.	There is a strong emphasis in IEC Standards on the durability of solar panels, meaning that they should be able to last for at least 25 years before being replaced. The IEC CA Systems offer schemes to this effect. TC 82 has also published a standard for perovskite which is a new material to replace silicon and which is more energy efficient and conductive. Several IEC documents address recycling at least partially and new work is under way: IEC TS 62257-6:2015 Edition 2.0 (2015-12-11) - Recommendations for renewable energy and hybrid systems for rural electrification - Part 6: Acceptance, operation, maintenance and replacement IEC 62788-1-7:2020 Edition 1.0 (2020-04-21) - Measurement procedures for materials used in photovoltaic modules - Part 1-7: Encapsulants - Test procedure of optical durability IEC TS 62788-5-2:2020 Edition 1.0 (2020-06-22) - Measurement procedures for materials used in photovoltaic modules - Part 5-2: Edge seals - Durability evaluation guideline IEC TS 62994:2019 Edition 1.0 (2019-01-29) - Photovoltaic (PV) modules through the life cycle - Environmental health and safety (EH&S) risk assessment - General principles and nomenclature

	IEC TS 63049:2017 Edition 1.0 (2017-09-06) - Terrestrial photovoltaic (PV) systems - Guidelines for effective quality assurance in PV systems installation, operation and maintenance IEC TR 63292:2020 Edition 1.0 (2020-06-26) - Photovoltaic power systems (PVPSs) - Roadmap for robust reliability IEC 62759-1:2015 Edition 1.0 (2015-06-26) - Photovoltaic (PV) modules - Transportation testing - Part 1: Transportation and shipping of module package units Currently under development: IEC 62788-7-3 ED1 Measurement procedures for materials used in photovoltaic modules - Part 7-3: Environmental exposures - Accelerated abrasion tests of PV module external surfaces IEC TS 63209-2 ED1 Extended-stress testing of photovoltaic modules for risk analysis – Part 2: Durability characterization of polymeric component materials and packaging sets
Would you agree that Cybersecurity is an enabler to many of the SDGs?	Cybersecurity is an important topic that directly contributes to several SDGs in that it ensures the long-term safety and security of both operational systems and data. For example, energy, water, healthcare, and other critical infrastructure that apply the IEC 62443 Standard will be more secure against interruption which directly impacts economies and sometimes lives. In this sense cybers security is increasingly an enabler of several SDGs.
What are the sustainable development goals of African countries?	The SDGs are universal and the same for every country in the world. However, each country has its own independent strategy and approach to implemented these. More information on SDGs in Africa is available here, and the latest reports for SDG fulfilment in African countries is available here.
With sustainable development and photovoltaic solar energy technology, can international standards make a difference?	International standards make a difference, not only in SDGs and solar PV based energy, but in every aspect of electrotechnology and beyond. It is impossible to conceive a world without standards.
What support do standards provide for new technologies in photovoltaic solar energy?	Solar Photovoltaic energy system standards are developed and managed by the IEC Technical Committee, IEC/TC 82. More information is available here. TC 82 recently published a standard on perovskite, a new, more energy efficient and conductive material that is used to replace silicon. IEC Standards also underpin other solar technologies such solar concentrating power or solar water heaters, for example.